

Heroin

Heroin is a rapidly acting drug derived from the Asian opium poppy plant. Heroin is processed from morphine, a naturally occurring substance extracted from the seedpod of the Asian poppy. Heroin usually appears as a white or brown powder. Street names for heroin include "smack," "H," "skag," and "junk." Other names may refer to types of heroin produced in a specific geographical area, such as "Mexican black tar."

Health Hazards ———

Heroin abuse is associated with serious health conditions, including fatal overdose, spontaneous abortion, collapsed veins, and, particularly in users who inject the drug, infectious diseases, including HIV/AIDS and hepatitis.

The short-term effects of heroin abuse appear soon after a single dose and disappear in a few hours. After an injection of heroin, the user reports feeling a surge of euphoria ("rush") accompanied by a warm flushing of the skin, a dry mouth, and heavy extremities. Following this initial euphoria, the user goes "on the nod," an alternately wakeful and drowsy state. Mental functioning becomes clouded due to the depression of the central nervous system. Long-term

effects of heroin appear after repeated use for some period of time. Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, cellulitis, and liver disease. Pulmonary complications, including various types of pneumonia, may result from the poor health condition of the abuser, as well as from heroin's depressing effects on respiration.

Heroin abuse during pregnancy and its many associated environmental factors (e.g., lack of prenatal care) have been associated with adverse consequences including low birth weight, an important risk factor for later developmental delay.

In addition to the effects of the drug itself, street heroin may have additives that do not readily dissolve and result in clogging the blood vessels that lead to the lungs, liver, kidneys, or brain. This can cause infection or even death of small patches of cells in vital organs.

Tolerance, Addiction, and Withdrawal

With regular heroin use, tolerance develops. This means the abuser must use more heroin to achieve the same intensity of effect. As higher doses are used over time, physical dependence and addiction develop. With physical

dependence, the body has adapted to the presence of the drug and withdrawal symptoms may occur if use is reduced or stopped.

Withdrawal, which in regular abusers may occur as early as a few hours after the last administration, produces drug craving, restlessness, muscle and bone pain, insomnia, diarrhea and vomiting, cold flashes with goose bumps ("cold turkey"), kicking movements ("kicking the habit"), and other symptoms. Major withdrawal symptoms peak between 48 and 72 hours after the last dose and subside after about a week. Sudden withdrawal by heavily dependent users who are in poor health is occasionally fatal, although heroin withdrawal is considered less dangerous than alcohol or barbiturate withdrawal.

Treatment —————

There is a broad range of treatment options for heroin addiction, including medications as well as behavioral therapies. Science has taught us that when medication treatment is integrated with other supportive services, patients are often able to stop heroin (or other opiate) use and return to more stable and productive lives.

In November 1997, the National Institutes of Health (NIH) convened a Consensus Panel on Effective Medical Treatment of Heroin Addiction. The panel of national experts concluded that opiate drug addictions are diseases of

the brain and medical disorders that indeed can be treated effectively. The panel strongly recommended (1) broader access to methadone maintenance treatment programs for people who are addicted to heroin or other opiate drugs; and (2) the Federal and State regulations and other barriers impeding this access be eliminated. This panel also stressed the importance of providing substance abuse counseling, psychosocial therapies, and other supportive services to enhance retention and successful outcomes in methadone maintenance treatment programs. The panel's full consensus statement is available by visiting the NIH Consensus Development Program Web site at consensus.nih.gov.

Methadone, a synthetic opiate medication that blocks the effects of heroin for about 24 hours, has a proven record of success when prescribed at a high enough dosage level for people addicted to heroin. Other approved medications are *naloxone*, which is used to treat cases of overdose, and *naltrexone*, both of which block the effects of morphine, heroin, and other opiates.

Buprenorphine is the most recent addition to the array of medications available for treating addiction to heroin and other opiates. This medication is different from methadone in that it offers less risk of addiction and can be dispensed in the privacy of a doctor's office. Several other medications for use in heroin treatment programs are also under study.

For the pregnant heroin abuser, methadone maintenance combined with prenatal care and a comprehensive drug treatment program can improve many of the detrimental maternal and neonatal outcomes associated with untreated heroin abuse. There is preliminary evidence that buprenorphine also is safe and effective in treating heroin dependence during pregnancy, although infants exposed to methadone or buprenorphine during pregnancy typically require treatment for withdrawal symptoms. For women who do not want or are not able to receive pharmacotherapy for their heroin addiction, detoxification from opiates during pregnancy can be accomplished with relative safety, although the likelihood of relapse to heroin use should be considered.

There are many effective behavioral treatments available for heroin addiction. These can include residential and outpatient approaches. Several new behavioral therapies are showing particular promise for heroin addiction. *Contingency management* therapy uses a voucher-based system, where patients earn “points” based on negative drug tests, which they can exchange for items that encourage healthful living. *Cognitive-behavioral* interventions are designed to help modify the patient’s thinking, expectancies, and behaviors and to increase skills in coping with various life stressors.

Extent of Use ———

Monitoring the Future (MTF) Survey*

According to the 2006 MTF, rates of lifetime** and past year heroin use were stable among all three grades surveyed. However, 8th-graders reported significant declines in past month use of heroin, from 0.5 percent in 2005 to 0.3 percent in 2006.

Recent peaks in past year heroin use were observed in 1996 for 8th-graders (1.6 percent), 1997–2000 for 10th-graders (1.4 percent), and 2000 for 12th-graders (1.5 percent). Past year use in 2006 was significantly lower than these peak years of use for all three grades.

**Heroin Use by Students, 2006:
Monitoring the Future Survey**

	8th-Graders	10th-Graders	12th-Graders
Lifetime	1.4%	1.4%	1.4%
Past year	0.8	0.9	0.8
Past month	0.3	0.5	0.4

Community Epidemiology Work Group (CEWG)***

In 2005, primary heroin treatment admissions—as a proportion of all treatment admissions, excluding alcohol—were highest in Newark (79.7 percent), Boston (75.6 percent), and Baltimore (60.9 percent), and ranged between

41.0 and 53.0 percent in San Francisco, New York City, Detroit, and Chicago.

National Survey on Drug Use and Health (NSDUH)****

In 2005, there were 108,000 persons aged 12 or older who had abused heroin for the first time within the past year. The average age at first use among recent initiates aged 12 to 49 was 22.2 years. There was no significant change in the number of current heroin users in

2005 (136,000) compared with estimates from 2004.

Drug Abuse Warning Network (DAWN)*****

DAWN estimates 164,572 heroin-related emergency department (ED) visits in 2005, and the majority of these patients ranged in age between 21 and 44. The rates of ED visits involving heroin were higher for males than for females.

* These data are from the 2006 Monitoring the Future survey, funded by the National Institute on Drug Abuse, National Institutes of Health, DHHS, and conducted annually by the University of Michigan's Institute for Social Research. The survey has tracked 12th-graders' illicit drug use and related attitudes since 1975; in 1991, 8th- and 10th-graders were added to the study. The latest data are online at www.drugabuse.gov.

** "Lifetime" refers to use at least once during a respondent's lifetime. "Past year" refers to use at least once during the year preceding an individual's response to the survey. "Past month" refers to use at least once during the 30 days preceding an individual's response to the survey.

*** CEWG is a NIDA-sponsored network of researchers from 21 major U.S. metropolitan areas and selected foreign countries who meet semiannually to discuss the current epidemiology of drug abuse. CEWG's most recent reports are available at www.drugabuse.gov/about/organization/cewg/pubs.html.

**** NSDUH (formerly known as the National Household Survey on Drug Abuse) is an annual survey of Americans age 12 and older conducted by the Substance Abuse and Mental Health Services Administration. Copies of the latest survey are available at www.samhsa.gov and from the National Clearinghouse for Alcohol and Drug Information at 800-729-6686.

***** These data are from the annual Drug Abuse Warning Network, funded by the Substance Abuse and Mental Health Services Administration, DHHS. The survey provides information about emergency department visits that are induced by or related to the use of an illicit drug or the nonmedical use of a legal drug. The latest data are available at 800-729-6686 or online at www.samhsa.gov.

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